

#### Salton Sea Unit 6 185 MW



California-Mexico Border Energy Workshop San Diego, California December 14, 2004



#### **Table of Contents**

- About MidAmerican Energy Holdings Company
- Imperial Valley Operations
- Environmental Issues
- Salton Sea Unit 6 Project Overview



## MidAmerican Energy Holdings Company



### MidAmerican Energy Holdings Company

#### Six Primary Business Platforms:

#### MidAmerican Energy

Distributes electricity and natural gas to 1.3 million customers in lowa, Illinois, South Dakota and Nebraska.

#### Northern Electric U.K.

Distributes electricity to more than 3.6 million customers in the Northeast of England and across Britain.

#### CalEnergy

Owns and operates power plants in Illinois, Arizona, California, New York, Texas and the Philippines.

#### Kern River Gas Transmission Company

Owns and operates a 1,643-mile gas pipeline from Southwestern Wyoming to near Bakersfield, California.

#### Northern Natural Gas

Owns and operates 16,600 miles of pipeline from Texas to the upper Midwest.

#### HomeServices

Second-largest residential real estate brokerage company in the United States, based on closed transactions.



### MidAmerican Energy Holdings Company

- Executive offices Omaha, Nebraska
- Corporate headquarters Des Moines, Iowa
- Privately owned by a four-party investor group Berkshire Hathaway is the largest shareholder
- Business in U.S., U.K., Philippines, Poland and Australia
- 5 million electric & gas customers
- \$6.1 billion annual revenue
- > \$19 billion in assets
- Approximately 11,500 employees
- Approximately 9,000 MW of net generation capacity
- www.midamerican.com

## Imperial Valley Operations

## CalEnergy Geothermal Development History in Imperial Valley



Fuel Source: Geothermal

Location: Calipatria, California

Salton Sea I: 1982
10 MW

Vulcan: 1986 38 MW

Elmore: 1989 42 MW

Hoch: 1989 42 MW

Salton Sea III: 1989 50 MW

Leathers: 1990 42 MW

Salton Sea II: 1990 17 MW

Salton Sea IV: 1996 40 MW

CE Turbo: 2000 10 MW

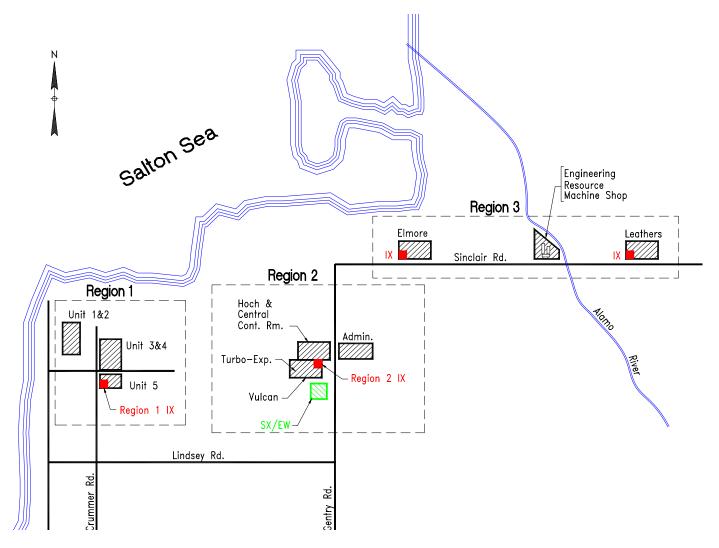
Salton Sea V: 2000 49 MW

Total Capacity: ~ 340 MW





### Imperial Valley Operations

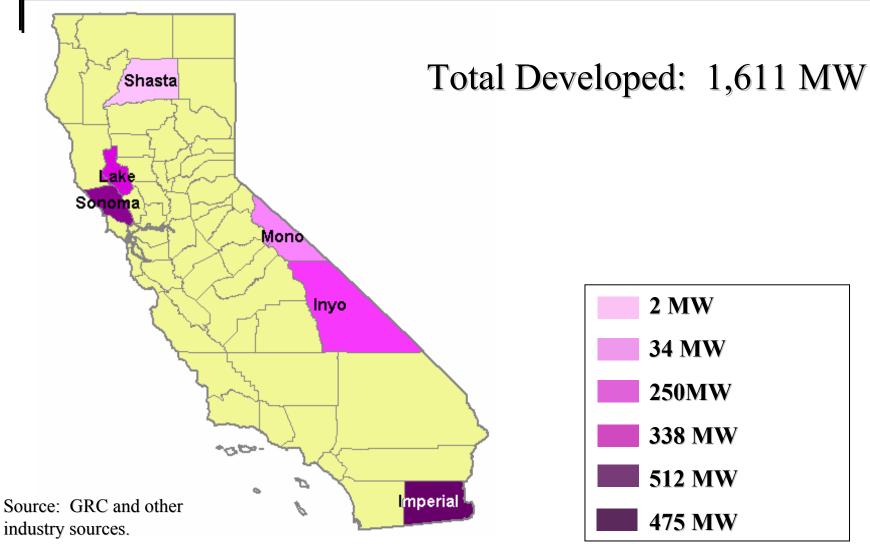


# Imperial Valley and Geothermal Energy



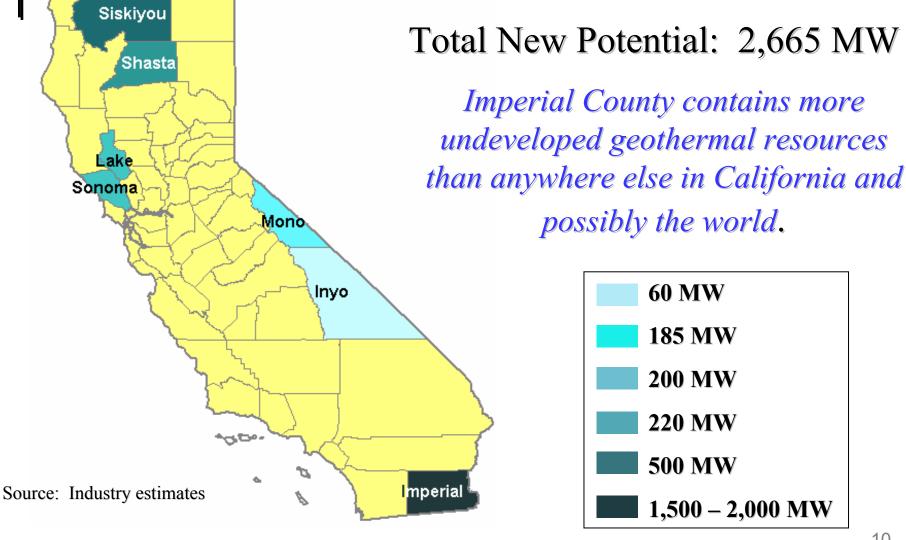
## Developed Geothermal Power In California





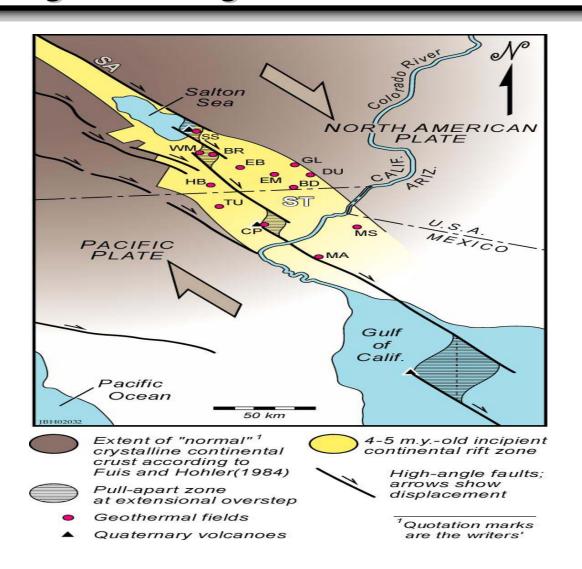
## New Geothermal Development Potential in California





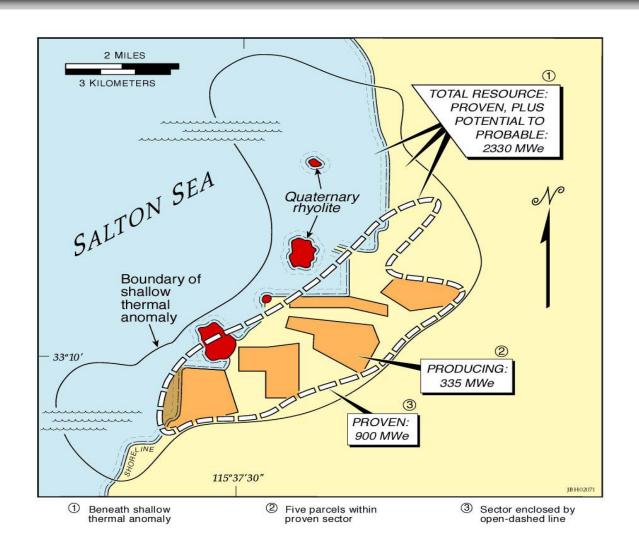


### Geologic Settings and Plate Tectonics





### Latest Estimate of Resource Potential



## Clean, Green, Environmentally Friendly Energy

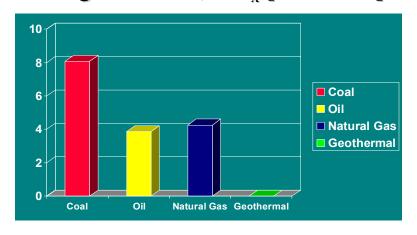


- Geothermal is a Renewable and Clean Source of Power
- Very Sensitive to Environmental Concerns
  - Agricultural Neighbors
  - Salton Sea National Wildlife Refuge
  - Excellent Relations with Regulatory Agencies
- Air Emissions
  - Very Minor Quantities of Non-Condensable Gases
- Water Discharges
  - None
- Solid Waste
  - Silica solids

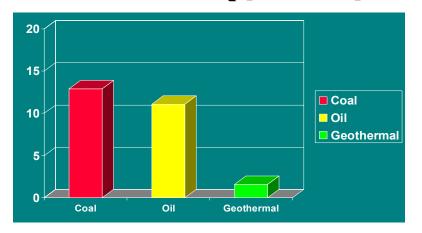
## Clean, Green, Environmentally Friendly Energy (continued)



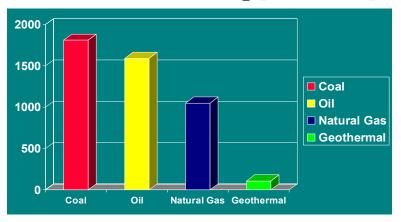
#### Nitrogen Oxides, NO<sub>x</sub> [lbs/MWh]



#### Sulfur Dioxide, SO<sub>2</sub> [lbs/MWh]



#### Carbon Dioxide, CO<sub>2</sub> [lbs/MWh]



Each year 22 million tons of carbon dioxide, 200 thousand tons of nitrogen oxides and 110 thousand tons of particulate matter are not emitted to the atmosphere because we used electricity from geothermal resources rather than burning fossil fuels.

Source: Geothermal Education Office & US Department of Energy



### Imperial County – Planning Ahead

- Lessons Learned from the 2000-2001 Energy Crisis:
  - Heavy reliance on imported energy can be extremely costly. Develop local generation to avoid risks out of your control.
  - Heavy reliance on volatile natural gas supplies can be extremely costly. <u>Diversify</u> your portfolio to better manage risk.
  - Delaying forward looking decisions for political reasons can be extremely costly. Plan ahead for the long-term to avoid crisis.
- Salton Sea Unit 6:
  - Complements IID's proven hedging strategy of <u>diversifying risk</u>.
  - Adds 185 MW of <u>local</u> generation that is safe, competitive, clean, <u>green</u>, and reliable at a <u>fixed price</u> and <u>avoids volatility and uncertainty</u> associated with fuel, transmission and emissions from fossil fuel based alternatives.
  - Produces significant local <u>economic development</u>.
  - Further sets the Imperial County apart as a <u>leader</u> in California.

## Salton Sea Unit 6 Proposed Geothermal Project



## Salton Sea Unit 6: Proposed Geothermal Plant



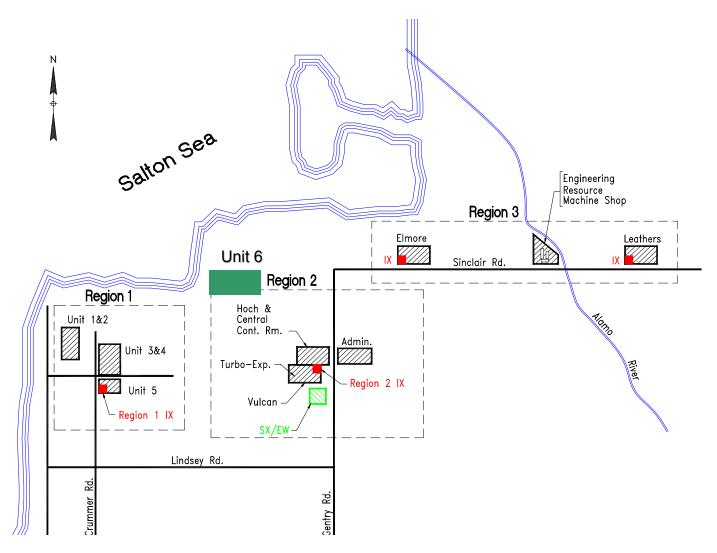


- Capitalizes on a vast regional potential
- Fuel Source: Geothermal
- Location: Imperial County, California
- > 185 MW net output
- Planned COD Q2 2007

- Base load plant
- High availability factor
- "Green" energy
- Proven technology
- Instate Renewable Energy



### Salton Sea Unit 6 Location





#### Salton Sea Unit 6 Factoids

- The new plant will produce approximately 185 megawatts of electricity. That is nearly twice as much energy as the next largest geothermal operation in California and is enough power to supply 185,000 homes.
- Eighty-five percent of the new output will be sold to and distributed by the Imperial Irrigation District. The other 15 percent will be sold to other parties.
- All of the necessary federal and state permits were obtained in a timely manner and construction for the plant is scheduled to begin during the second quarter of 2005. Commercial operation is scheduled for Summer 2007.
- Salton Sea 6 will be the largest single geothermal steam turbine set, located at the largest fluid-dominated geothermal field in the United States.
- The existing plants produce approximately 340 megawatts of electricity with the majority of that energy sold to Southern California Edison.
- CE Obsidian Energy LLC, a subsidiary of MidAmerican Energy Holdings Company, headquartered in Des Moines, Iowa, will own Salton Sea 6. The plant will be the company's 11th generating plant in the Imperial Valley.

## **Benefits**

# Salton Sea Unit 6 Benefits to the Community



- Commercial operation of Salton Sea 6 will require 69 new, full-time employees. During construction, approximately 450-500 highly skilled positions will be needed.
- The new plant will bring much-needed jobs to Imperial County, which has an unemployment level of about 20 percent.
- Currently, CalEnergy Operating Corporation employs approximately 230 people in the Imperial Valley.
- Like the other CE Generation plants, Salton Sea 6 will produce electricity solely from naturally occurring geothermal fluid, an energy source that is reliable, renewable, clean, indigenous and economical.
- The electricity generated by the geothermal operation will diversify the Imperial Irrigation District's energy portfolio with a source that is clean, renewable, reliable, indigenous and economical.
- Like the other Imperial Valley geothermal generating units, Salton Sea 6 will not have any SO<sub>x</sub> or NO<sub>x</sub> emissions with the exception of back-up diesel generators which may be used occasionally.

## Salton Sea Unit 6 Benefits to the Community



- Some of the environmental benefits of Salton Sea 6, when compared to a combined cycle plant of similar capacity, are:
  - 1) A 92-percent reduction of water consumption,
  - 2) A 87-percent reduction of volatile compounds (VOC)
  - 3) A 61-percent reduction of particulate matters 10 microgram or smaller (PM10), and 4) A 78-percent reduction of carbon dioxide (CO2).
- A state study finds that electricity generated from renewable energy sources provides more jobs than traditional energy sources. It also concludes that much of the cost of electricity from fossil fuel plants is for out-of-state energy purchases, while money spent on renewable energy creates jobs and largely stays in the California economy.
- We believe the proposed Salton Sea 6 project will be a strong, environmentally friendly development.
- We look forward to working with the state of California and other organizations on this development and future expansion of the field so that we can provide much needed electricity in the state. This is a project that provides jobs, revenues and renewable energy benefits to one of the most deserving regions of California.